



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/661,028      | 09/11/2003  | David M. Pepper      | B-4077 618504-4     | 6773             |

36716 7590 11/28/2007  
LADAS & PARRY  
5670 WILSHIRE BOULEVARD, SUITE 2100  
LOS ANGELES, CA 90036-5679

|          |
|----------|
| EXAMINER |
|----------|

THOMAS, BRANDI N

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2873

|           |               |
|-----------|---------------|
| MAIL DATE | DELIVERY MODE |
|-----------|---------------|

11/28/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                               |                               |  |
|------------------------------|-------------------------------|-------------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>10/661,028 | Applicant(s)<br>PEPPER ET AL. |  |
|                              | Examiner<br>Brandi N. Thomas  | Art Unit<br>2873              |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11, 22-26 and 33-41 is/are pending in the application.
- 4a) Of the above claim(s) 3, 4 and 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 5, 6, 22-26 and 33-40 is/are rejected.
- 7) ☒ Claim(s) 2, 7, 9-11 and 41 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>Detailed Action</u>                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 6, 22, 23, 25, and 35-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Bloom et al. (5808797).

Regarding claims 6 and 35, Bloom et al. discloses, in figures 4-8, an optical retro-reflective apparatus for modulating an optical beam, the apparatus comprising: a retro-reflecting structure (10) including a substrate (not numbered) and a moveable grating structure (30) (col. 6, lines 34-42 and 63-65); and a micromechanical device for moving the moveable grating structure (30) relative to the substrate (not numbered) to cause the retro-reflecting structure (10) to switch between a retro-reflective mode of operation and a non-retro-reflective mode of operation (col. 6, lines 47-54), the micromechanical device being responsive to a signal to impart modulation to an optical beam which is retro-reflected from the retro-reflecting structure (10) (col. 6, lines 54-57).

Regarding claim 22, Bloom et al. discloses, in figures 4-8, an apparatus for retro-reflecting and modulating an optical beam comprising: a. a retro-reflecting structure (10) having at least one movable optical element (34) for selectively reflecting the optical beam impinging the retro-reflective structure (10) (col. 6, lines 46-50), the moveable optical element (34) having a first position in which the retro reflecting structure (10) retro-reflects the optical beam and having a second position in which the retro-reflecting structure does not retro-reflect the optical

beam (col. 6, lines 50-57); and b. a micromechanical for moving said at least one moveable optical element (34) in response to a modulation to thereby modulate the optical beam as a modulated retro-reflected beam (col. 6, lines 54-57).

Regarding claim 23, Bloom et al. discloses, in figures 4-8, an apparatus for retro-reflecting and modulating an optical beam, wherein the retro-reflecting structure (10) includes at least a pair of reflective surfaces (38), at least of said surface including the at least one optical element (34) which is moved less than a wavelength of the optical beam in order to modulate the retro-reflected beam (col. 6, lines 57-65).

Regarding claim 25, Bloom et al. discloses, in figures 4-8, an apparatus for retro-reflecting and modulating an optical beam, wherein the retro-reflecting structure (10) includes a substrate (not numbered) and a grating structure (30), at least one of said substrate (not numbered) and said grating structure (30) comprising the at least one optical element (34) which is moved less than a wavelength of the optical beam in order to modulate the retro-reflected beam (col. 6, lines 57-65).

Regarding claims 36, 37, and 39, Bloom et al. discloses, in figures 4-8, an optical retro-reflective apparatus for modulating an optical beam, wherein the substrate is at least partially reflective (col. 6, lines 20-30).

Regarding claims 38 and 40, Bloom et al. discloses, in figures 4-8, an optical retro-reflective apparatus for modulating an optical beam, wherein the moveable grating structure (30) is configured to at least partially reflect an optical beam towards the partially reflective surface (col. 6, lines 34-42).

*Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 5, 33, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shoyu (JP 2004-138996) in view of Bloom et al. (5808797).

Regarding claim 1, Shoyu discloses, in figure 1, an optical retro-reflective apparatus with modulation capability comprising: a retro-reflecting Fabry-Perot structure (10) including a pair of reflective surfaces (11 and 12) (section 0004) but does not specifically disclose a micromechanical device for moving at least one of the reflective surfaces of said pair of reflective surfaces relative to another one of the reflective surfaces of said pair of reflective surfaces a distance which causes the pair of the reflective surfaces to switch between a reflective mode of operation and a transmissive mode of operation. Bloom et al. discloses, in figures 4-8, a micromechanical device for moving at least one of the reflective surfaces (38) of said pair of reflective surfaces (38) relative to another one of the reflective surfaces of said pair of reflective surfaces a distance which causes the pair of the reflective surfaces to switch between a reflective mode of operation and a transmissive mode of operation (col. 6, lines 47-54). Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to combine the device of Shoyu with the micromechanical device of Bloom et al. for the purpose of reflecting and deflecting light (col. 6, lines 47-54).

Regarding claim 5, Shoyu discloses, in figure 1, an optical retro-reflective apparatus with modulation capability, wherein the micromechanical device is a ME device made using photolithographic techniques (col. 6, lines 44-46).

Regarding claim 33, Shoyu discloses, in figure 1, an optical retro-reflective apparatus with modulation capability comprising: a first reflective surfaces (11) (section 0004); a second reflective surface (12) having a first position in which the retro-reflecting apparatus retro-reflects an optical beam and having a second position in which the retro- reflecting apparatus does not retro-reflect the optical beam (section 0004) but does not specifically disclose a micromechanical device operable to move the second reflective surface between the first position and the second position, wherein the first reflective surface and the second reflective surface are parallel to each other in the first position and the second position. Bloom et al. discloses, in figures 4-8, a micromechanical device operable to move the second reflective surface between the first position and the second position, wherein the first reflective surface and the second reflective surface are parallel to each other in the first position and the second position (col. 6, lines 47-54). Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to combine the device of Shoyu with the micromechanical device of Bloom et al. for the purpose of reflecting and deflecting light (col. 6, lines 47-54).

Regarding claim 34, Shoyu discloses, in figure 1, an optical retro-reflective apparatus with modulation capability but does not specifically disclose wherein the first and second positions being spaced by a distance less than a wavelength of the optical beam. Bloom et al. discloses, in figures 4-8, wherein the first and second positions being spaced by a distance less than a wavelength of the optical beam (col. 6, lines 54-57). Therefore it would have been

obvious to one having ordinary skill in the art at the time of the invention to combine the device of Shoyu with the micromechanical device of Bloom et al. for the purpose of reflecting and deflecting light (col. 6, lines 47-54).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bloom et al. (5808797).

Regarding claims 24 and 26, Bloom et al. discloses the claimed invention but does not specifically disclose wherein the pair of reflective surfaces are arranged in either a cat's eye or a corner cube configuration. It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the reflective surfaces in either a cat's eye or a corner cube, since it has been held that rearranging parts of an invention involves only routine skill in the art (In re Japiske, 86 USPQ 70).

***Allowable Subject Matter***

7. Claims 2, 7, 9-11, and 41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the independent claim(s), in such a manner that a rejection under 35 U.S.C. 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in claim(s) 2, 7, and 41, wherein the claimed invention comprises, in claims 2 and 7, wherein the retro-reflecting structure includes a corner cube arrangement with the pair of reflective surfaces forming at least one angled reflecting surface of the corner cube arrangement and another reflecting surface forming another angled reflecting surface of the corner cube arrangement; and in claim 41, wherein the retro-reflecting structure includes a first grating structure and a second grating structure, at least one of said grating structures comprises the at least one optical element which is moved less than a wavelength of the optical beam in order to modulate the retro-reflected beam, as claimed.

#### ***Response to Arguments***

9. Applicant's arguments with respect to claims 1, 2, 5-7, 9-11, 22-26, and 33-41 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandi N. Thomas whose telephone number is 571-272-2341. The examiner can normally be reached on Monday - Thursday from 6-4:30.



Application/Control Number:  
10/661,028  
Art Unit: 2873

Page 8

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack can be reached on 571-272-2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



BNT  
November 20, 2007

Brandi N Thomas  
Examiner  
Art Unit 2873



Scott J. Sugarman  
Primary Examiner